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     FILE 'CAPLUS' ENTERED AT 19:49:10 ON 12 NOV 2005
L1      1043801 SEA ABB=ON  PLU=ON  COAT?
L2         2777 SEA ABB=ON  PLU=ON  L1 AND ?THIOPHENE?
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L4          475 SEA ABB=ON  PLU=ON  L2 AND (MODERATOR OR ?IMIDAZOLE? OR
                ?PYRIDINE? OR ?AMINE?)
L5            2 SEA ABB=ON  PLU=ON  L3 AND L4
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L6           75 SEA ABB=ON  PLU=ON  L2 AND (((IRON? OR FE) (5A) (?TOLUENESULFON
                ATE? OR ?TOSYLATE?)) OR OXIDIZER? OR OXIDANT?)
L7            7 SEA ABB=ON  PLU=ON  L4 AND L6
L8            7 FOCUS L7 1-
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Hawley's

Condensed Chemical

Dictionary

TWELFTH EDITION

Revised by

Richard J. Lewis, Sr.

Erma Cameron

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PRIMARY EXAMINER

VNR VAN NOSTRAND REINHOLD COMPANY
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troleum diluents. The higher the ratio, the better the solvent.

butyl acetoacetate. CAS: 591-60-6.
$CH_3COCH_2COOCH_2CH_2CH_2CH_3$.
Properties: Colorless liquid, insoluble in water, soluble in alcohol and ether. d 0.9694 (20/20C), bp 213.9C, vap press 0.19 mm Hg (20C), flash p 185F (85C), wt/gal 8.1 lb (20C). Combustible.
Grade: Technical.
Use: Intermediate in synthesis of metal derivatives, dyestuffs, pharmaceuticals, flavoring.

butyl acetoxystearate.
$CH_3(CH_2)_5CH(CH_3COO)(CH_2)_{10}COOC_4H_9$.
Properties: See butyl acetyl ricinoleate.
Derivation: From castor oil, butylalcohol, and acetic anhydride with hydrogenation.
Use: Plasticizer, textile oils, adhesives.

butyl acetylene. See 1-hexyne.

butyl acetyl ricinoleate. $C_{24}H_{44}O_4$.
Properties: Yellow, oily liquid; mild odor; miscible with most organic solvents; d 0.940 (20/20C); sapon number 125; fp indefinite: becomes cloudy at −32C; solidifies at −65C. Flash p 230F (110C) (OC), refr index 1.4614 (20C). Saybolt viscosity 123 sec at 100F, wt/gal 7.8 lb (20C), almost insoluble in water. Combustible. Autoign temperature 725F (385C).
Derivation: From castor oil, butanol, and acetic anhydride.
Grade: Technical.
Use: Plasticizer, emulsifier, lubricant, detergent, protective coatings, special cleansing compounds, quick-breaking emulsions.

n-butyl acid phosphate. (n-butylphosphoric acid; acid butyl phosphate). CAS: 12788-93-1.
Properties: Water-white liquid, d 1.120–1.125 (25/4C), refr index 1.429 (25C), flash p (COC) 230F (110C). Soluble in alcohol, acetone, and toluene. Insoluble in water and petroleum naphtha. Combustible.
Hazard: Strong irritant to skin and tissue.
Use: Esterification catalyst and polymerizing agent, curing catalyst and accelerator in resins and coatings, special detergents.

N-tert-butylacrylamide. $H_2C{:}CHCONHC(CH_3)_3$.
Properties: White, crystalline solid; mp 128–130C; d 1.015 (30C). Soluble in methanol, ethanol, chloroform, and acetone. Combustible.
Hazard: Toxic by ingestion and inhalation. Irritant to skin.
Use: Monomer, organic intermediate.

n-butyl acrylate. CAS: 141-32-2.
$CH_2{:}CHCOOC_4H_9$.
Properties: Colorless liquid, fp −64C, boiling range 145.7–148.0C, polymerizes readily on heating, vap press (20C) 3.2 mm Hg, d 0.9015 (20/20C), wt/gal 7.5 lb (20C), flash p 120F (49C) (OC). Nearly insoluble in water. Flammable.
Derivation: Reaction of acrylic acid or methyl acrylate with butanol.
Grade: Technical (inhibited).
Hazard: Moderate fire risk. TLV: 10 ppm in air.
Use: Intermediate in organic synthesis, polymers and copolymers for solvent coatings, adhesives, paints, binders, emulsifiers.
See also acrylic resin.

tert-butyl-acrylate. $CH_2{:}CHCOOC(CH_3)_3$.
Properties: Liquid, bp 120C, d 0.879 (25C), refr index 1.4080 (25C), flash p 66F (18.8C) (TOC). Commercial grade contains 100 ppm hydroquinone monomethyl ether as stabilizer.
Hazard: Toxic by ingestion and inhalation. Flammable, dangerous fire risk. TLV: 10 ppm in air.
Use: Monomer for acrylic resins.

n-butyl alcohol. (1-butanol; butyric alcohol). CAS: 71-36-3. $CH_3(CH_2)_2CH_2OH$.
Properties: Colorless liquid, vinous odor. Bp 117.7C, fp −89.0C, d (20/20C) 0.8109, wt/gal (20C) 6.76 lb, refr index 1.3993 (20C), flash p 95F (35C). Soluble in water 7.7 wt % (20C), solution of water in n-butanol 20.1%. Miscible with alcohol and ether. Autoign temperature 689F (365C).
Derivation: (1) Hydrogenation of butyraldehyde, obtained in the Oxo process; (2) condensation of acetaldehyde to form crotonaldehyde, which is then hydrogenated (aldol condensation).
Hazard: Toxic on prolonged inhalation, irritant to eyes, absorbed by skin. Flammable, moderate fire risk. TLV: ceiling 50 ppm in air.
Use: Preparation of esters, especially butyl acetate; solvent for resins and coatings; plasticizers; dyeing assistant; hydraulic fluids; detergent formulations; dehydrating agent (by azeotropic distillation); intermediate; "butylated" melamine resins; glycol ethers; butyl acrylate.

sec-butyl alcohol. (SBA; 2-butanol; methylethylcarbinol). CAS: 78-92-2.
$CH_3CH_2CH_2OCH_3$.
Properties: Colorless liquid, strong odor, bp 99.5C, fp −114C, d (20/4C) 0.808, wt/gal (20C) 66.74 lb, refr index 1.3949 (25C), flash p 75F (23.8C) (CC), autoign temperature 763F (406C). Moderately soluble in water, miscible with alcohol and ether.
Derivation: Absorption of butene from cracking petroleum or natural gas in sulfuric acid with subsequent hydrolysis by steam.
Grade: Technical.
Hazard: Toxic on prolonged inhalation, irritat-

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ing to eyes and skin. Flammable, dangerous fire risk. TLV: 100 ppm in air.
Use: Preparation of methyl ethyl ketone, solvent, organic synthesis, paint removers, industrial cleaners.

tert-butyl alcohol. (2-methyl-2-propanol; trimethyl carbinol). CAS: 75-65-0. $(CH_3)_3COH$.
Properties: Colorless liquid or crystals, camphor odor, fp 25.5C, bp 82.9C, d (liquid 26C) 0.779, refr index 1.3878 (20C), flash p 52F (11.1C) (CC), autoign temperature 892F (477C). Miscible with water, alcohol, and ether.
Derivation: Absorption of isobutene from cracking petroleum or natural gas in sulfuric acid with subsequent hydrolysis by steam.
Grade: Technical.
Hazard: Irritant to eyes and skin. Flammable, dangerous fire risk. TLV: 100 ppm in air.
Use: Alcohol denaturant, solvent for pharmaceuticals, dehydration agent, perfumery, chemical intermediate, paint removers, manufacture of methyl methacrylate, octane booster in unleaded gasoline (EPA approved).

n-butyl aldehyde. See butyraldehyde.

n-butylamine. (1-aminobutane).
CAS: 109-73-9. $C_4H_9NH_2$.
Properties: Colorless, volatile liquid with amine odor; bp 77.1C; fp −49.1C; d 0.7385 (20/20C), wt/gal 6.2 lb (20C); refr index 1.401 (20C); flash p 30F (1.1C) (OC), miscible with water, alcohol, ether.
Derivation: Reaction of butanol or butyl chloride with ammonia.
Grade: Technical.
Hazard: Skin irritant. Flammable, dangerous fire risk. TLV: ceiling 5 ppm in air.
Use: Intermediate for emulsifying agents, pharmaceuticals, insecticides, rubber chemicals, dyes, tanning agents.

sec-butylamine. (2-aminobutane).
CAS: 13952-84-6. $CH_3CHNH_2C_2H_5$.
Properties: Colorless liquid, d 0.725 (20C), boiling range 63–68C, refr index 1.395 (20C), solidification point −104C, odor amine, flash p 15F (−9.4C), wt/gal 6.0 lb (20C).
Hazard: Flammable, dangerous fire risk.
Use: Fungicide.

tert-butylamine. CAS: 75-64-9. $(CH_3)_3CNH_2$.
Properties: Colorless liquid, bp 44–46C, fp −72C, d 0.700 (15C), refr index 1.3794 (18C), flash p approximately 50F (10C). Miscible with water, soluble in common organic solvents.
Grade: Technical.
Hazard: Skin irritant. Flammable, dangerous fire risk.

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Use: Intermediate for rubber accelerators, insecticides, fungicides, dyestuffs, pharmaceuticals.

butyl-o-aminobenzoate. See butyl anthranilate.

n-butyl-p-aminobenzoate. $H_2NC_6H_4COOC_4H_9$.
Properties: White powder, odorless, tasteless, mp 57–59C, bp 174C (8 mm Hg). Soluble in dilute acids, alcohol, chloroform, ether, and fatty oils; almost insoluble in water.
Grade: NF.
Hazard: Toxic by ingestion.
Use: Medicine (local anesthetic), treatment of burns, ointments, UV absorber in suntan preparations.

N-n-butylaminoethanol. $C_4H_9NHC_2H_4OH$.
Properties: Liquid, d 0.88–0.99 (20/20C), distillation range 192–210C, wt/gal 7.4 lb, flash p 170F (76.6C). Combustible.

tert-butylaminoethyl methacrylate.
$CH_2{:}C(CH_3)COOCH_2CH_2NHC(CH_3)_3$.
Properties: Liquid, bp 100–105C (12 mm Hg), d 0.914 (25C), wt/gal 7.61 lb, refr index 1.4440 (25C), flash p 205F (96.1C) (COC). Combustible.
Use: Coatings, textile chemicals, dispersing agent for nonaqueous systems, antistatic agent, stabilizer for chlorinated polymers, ion-exchange resins, emulsifying agent, cationic precipitating agent.

N′-n-butyl-3-amino-4-methoxybenzenesulfonamide.
$CH_3OC_6H_3(NH_2)SO_2NHC_4H_9$.
Properties: Pink powder, mp 96–100C, insoluble in water, partially soluble in alcohol and acetone. Used as an intermediate.

N-n-butylaniline. $C_6H_5NHC_4H_9$.
Properties: Amber liquid, d 0.932 (20C), boiling range 236–242C, refr index 1.534 (20C), odor aniline, very soluble in alcohol and ether, insoluble in water, flash p 225F (107C). Combustible.
Use: Organic synthesis, dyes.

butyl anthranilate. (butyl-o-aminobenzoate).
$C_4H_9OOCC_6H_4NH_2$.
Used in flavoring.

2-tert-butylanthraquinone. $C_{18}H_{16}O_2$.
Properties: Yellow powder, mp 102–104C, soluble in alcohol and acetone. Combustible.
Grade: Technical (98%).
Use: Organic synthesis.

butylated hydroxyanisole. (BHA).
CAS: 25013-16-5. $(CH_3)_3CC_6H_3OH(OCH_3)$.
A mixture of 2- and 3-tert-4-methoxyphenol.